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CURRENT THERAPY

The Duality of Diabetes Mellitus and Its Relationship to the Usefulness of the New Oral "Antidiabetic Agents"

By T. Sterling Martin, M. S., M. D., El Paso*

All physicians who have dealt with more than a few cases of diabetes mellitus have come to appreciate a considerable difference between a type, usually having onset in an older overweight patient, in which ketosis is rare and weight loss highly effective in controlling hyperglycemia, and another type, usually beginning rather abruptly and early in life, in which ketosis occurs very easily and weight loss is of little benefit and usually not indicated anyway, since the patient is apt to be already lean.

Most of us have thought of these two types as simply milder and severer forms of fundamentally the same disease. But there is good reason to consider them fundamentally different diseases.

An understanding of this difference is important to rational management, not only in setting criteria for good control by methods already in use, but also in applying the new oral hypoglycemic agents, the sulfonylureas.

Not New Concept

It is not a new concept to think of primary and secondary diabetes, or, more specifically, diabetes due to absolute insulin deficiency and diabetes due to only relative insulin insufficiency.

We have ordinarily placed in the "secondary" category those rare cases of diabetes occurring in endocrine diseases that are characterized by an overproduction of hyperglycemia-promoting hormones, e. g., acromegaly and Cushing's syndrome, where unusual amounts of insulin are required to obtain homeostasis, clinical diabetes appearing when the patient's islets are no longer able to secrete a sufficiently excessive quantity of insulin.

And we have thought of all ordinary diabetes as being "primary". But convincing evidence has been put forth to show that the type of common diabetes (hereafter referred to as Type II) which is ordinarily associated with onset in the older, more or less obese patient, is just as much a secondary disorder as the diabetes of acromegaly, and a different disease from the type of common diabetes usually associated with youth and leanness (hereafter referred to as Type I).

Concepts Reviewed

Before mentioning this evidence, it may be appropriate to review the generally accepted concepts of the mechanism of blood sugar level control and the sites of action of insulin. In brief, the elevation of blood glucose is promoted by:

A) Introduction of glucose into the circulation

- **1)** Absorption of glucose from the bowel
- **2)** Release of glucose from the breakdown of stored glycogen
- **3)** Release of glucose manufactured from non-carbohydrate substances (gluconeogenesis)

B) Inhibition of glucose utilization

- **1)** Blockage of uptake of glucose by the tissues and its breakdown to CO_2 and H_2O (energy)
- **2)** Blockage of conversion of glucose to fatty acids (lipid storage)

These two routes of utilization account, about equally, for about 95 per cent of glucose expenditure. The remainder is converted to glycogen in the liver. Both of these utilization processes are promoted by insulin.

Other Influences

The other endocrine influences on the blood glucose elevating processes are indicated (oversimplified) in the following table, in which the hormone that promotes each blood-sugar-elevating process is shown after it:

Absorption of Sugar from Bowel	No direct endocrine control

*Dr. Martin this month is substituting for Dr. Jack A. Bernard, regular conductor of this section.

Glycogenolysis	Glucagon Adrenalin
Gluconeogenesis	Growth Hormone Adrenocorticosteroids
Inhibition of Utilization (by antagonizing phosphorylation)	Growth Hormone

ACTH is involved through stimulating production of adrenocorticosteroids and probably in abetting the action of growth hormone on phosphorylation.

Known Stimuli

The only known stimuli to the production of insulin by the islet beta cells are hyperglycemia and the action of the right branch of the vagus nerve. One can readily see by a glance at the table why unusual demands for insulin may result from certain endocrine overproductive disorders, with a diabetic state (i.e., hyperglycemia and glycosuria) sometimes occurring.

It will be shown that Type II diabetes probably occurs through a blockade in one of the major pathways of glucose utilization, lipogenesis, occurring for reasons other than subnormal insulin production.

All of the secondary diabetes may manifest insulin exhaustion at times, when the beta cells, because of overwork, can no longer produce even ordinary amounts of insulin, resulting in decline in glycolysis for energy production, with consequent compensatory increase in fat catabolism and thereby ketosis. Characteristically, however, after the stress has passed, the Type II diabetic will return to his former state.

Types Compared

Now, having introduced the concept of Type II diabetes as a disease not primarily of insulin deficiency, but of fat metabolism, with excessive demands on the beta cells as one of a number of its consequences, let us compare it to Type I diabetes both clinically and biochemically. Most "juvenile" diabetics are Type I, and a large percentage of them become "brittle" within a few years of onset, so that these terms are roughly interchangeable. On the other hand, Type II diabetics are almost invariably "stable", in the absence of severe infection and the like. Lawrence of England, a leading proponent of the duality of diabetes, uses the term "lipoplethoric". The two types have long been appreciated in Europe, under the terms *diabéte maigre* and *diabéte gras*.

Type I

(Primary Insulin Insufficiency)

Onset tends to be abrupt with fatigue and weight loss the dominant complaint

Onset mainly in childhood and youth — may begin at any age

Unrelated to weight

Ketosis occurs easily since an absolute insulin deficiency is present

Insulin-sensitive, and frequently brittle because of completeness of loss of homeostasis in the absence of endogenous insulin — widely fluctuating B. S., easily have insulin reaction after activity.

Low rate of degenerative change in proportion to other manifestations. Non-hyperlipemic

Type II

(Lipoplethoric Diabetes)

Onset tends to be gradual with polyuria and thirst the chief complaint

Onset mainly in middle life and beyond

Almost exclusively in those over ideal weight

Ketosis rarely occurs (barring conditions of CHO starvation such as will produce it in non-diabetics) since adequate insulin is present for completion of glucose oxidation.

Relatively insulin-tolerant and stable

Disturbances protein metabolism, especially mucoproteins (perhaps the basis of capillary disease: Kimmelstiehl-Wilson disease, diabetic retinopathy). High rate of acquisition of diabetic vascular complications. Hyperlipemic.

The bioassay of circulating insulin in human plasma shows generally normal levels in Type II diabetics. Exogenous labeled insulin is recoverable. On the other hand, Type I diabetic plasma usually contains no insulin on assay.

Added insulin is not recoverable unless the blood sugar level is physiologic. Additional laboratory support for clinical separation of the two diabetes was furnished by Hartcroft, Wrenshall, *et al*, in Toronto.

They studied the histologic appearance of pancreatic cells from dead diabetics and measured the extractable insulin. In the juvenile cases, they could recover little insulin. In the older patients, much more was recoverable, though not as much as from normal controls.

Still Mysterious

A great deal of mystery still surrounds the subject of insulin antagonists. Insulin antagonism probably becomes a predominant problem in some cases of severe diabetes where marked increases in insulin requirement develop. Glucagon, growth hormone, ACTH and certainly others unknown and quite possibly more important, are involved.

In summary, the modern concept of lipoplethoric diabetes places the basic fault in the fat storage mechanism which is brought out when storage is forced above the average and which inhibits further lipogenesis from glucose, so that much of the ingested CHO has "nowhere to go", to put it over simply. As a result, the fat precursor, glucose, piles up in the blood stream.

Storage Deficit

The storage deficit also is blamed for the hyperlipemia, consequent enhancement of atherosclerosis and, somehow, for the interference in mucoprotein chemistry which seems to be the cause of the capillary syndromes peculiar to diabetes and occurring in

highly disproportionate degree in stable adult diabetics compared with brittle adult diabetics of comparable duration.

If the storage blockade is removed by reducing the amount of fat already in storage, the hyperglycemia disappears.

Naturally, there are intergrades, mainly through permanent islet "exhaustion", presumably, occurring in Type II diabetics. Perhaps some cases are due to decimation of beta cells, in lipoplethoric individuals, by the same unknown toxins which are considered responsible for the production of Type I diabetes.

Alivisator and McCullagh (*American Journal of Medicine,* vol. 21, pp. 344-357, 1956) were unable to place 23 out of 172 diabetics into the two main groups, and had to consider them intergrades.

Limitations

With the above ideas in mind, it will be easier for the reader to understand the limitations of the new oral "antidiabetic" agents, and the implications of their presumed site of action.

These chemicals, the arylsulfonylureas, were first announced as useful hypoglycemic agents in the German medical press in October 1955.

Since then, the two major chemicals, carbutamide and tolbutamide, have received extensive clinical trials throughout the world, and have been studied in many laboratories. The clinical results were fairly uniform.

Carbutamide is probably doomed to discard because of frequency of toxic reaction, but tolbutamide, recently released to general use in this country as "Orinase", is much safer.

In the past few months, there have been a number of reports from Europe on a newer derivative, Rastinon, claiming its superiority to tolbutamide.

Orinase

Orinase will reduce hyperglycemia and glycosuria in Type II diabetics. The reduction in the morning fasting sugar level is the most impressive effect.

It has no effect on the sugar level curve of a glucose tolerance test, nor on post-cibal sugar levels. It cannot prevent ketosis.

One by one, the mechanisms of action proposed for it have been disproven: that it acts similarly to insulin; that it stimulates beta cells to increased insulin output, or inhibits alpha cells; that it inhibits a supposed insulinase so that endogenous insulin lasts longer; or (but there is still doubt here) that it inhibits glycogenolysis.

The clinical and laboratory data best support the hypothesis that it is a selective liver toxin, inhibiting certain enzyme systems with resulting blockage of liver functions concerned with manufacture of glucose from other substances — galactose, fructose, perhaps gluconeogenesis in general.

Gluconeogenesis

Gluconeogenesis is a mechanism of "internal feeding" keeping up blood glucose after some hours of fasting when the liver's stored glycogen begins to be depleted (hence, Orinase's main effect — fasting blood sugar depression).

It may be a stronger activity than average in some persons, through unusual activity of agents that stimulate it.

One would guess, then, that Orinase, if it works by blocking one of the channels of entry of glucose into the blood stream, would be useful only in those diabetics in whom dietary restriction is the paramount element in management. And this, indeed, is the consensus of opinion from the clinical experiences.

Much Abused

Some authorities feel it will be much abused, being used to help accomplish what proper dietary management alone would accomplish. They feel that, if other management is optimally adhered to, in only about 10 per cent of all diabetics will Orinase be of further benefit.

This group includes chiefly intergrade types in whom some insulin is still required although ideal weight has been obtained.

Insulin requirement may be reduced or eliminated in many of these. In many more typical Type II diabetics who take insulin in lieu of optimal dietary control, Orinase will abet their inadequate efforts in diet restriction.

In the Type II diabetic who is allergic to the small quantity of insulin he needs, or simply refuses to take it, Orinase will be useful. Needless to say, since the drug cannot promote combustion of glucose, it will not reduce ketosis and is of no help to the truly insulin-insufficient.

The course of a rare Type I diabetic may be smoothed by Orinase — perhaps because excessive gluconeogenesis was occurring.

No Surprise

The monotonously repeated conclusions of report after report, including that of the Committee on Summarization of the Conferences on the Present State of Knowledge Concerning Effects of the Sulfonylurea Compounds in Diabetes Mellitus (of the American Diabetic Association), as published in *Diabetes,* Jan.-Feb. 1957, will by now be no surprise to the reader: Orinase is effective almost exclusively in the overweight diabetic over 40, whose diabetes is of few years' duration, uncomplicated, and who is being carried on small to moderate doses of insulin.

Whether to use it in an individual case in this group, particularly when further weight loss alone would suffice, will require good judgment by the physician.

Further References:
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Wrenshall, G. A., Bogoch, A., & Ritchie, R. C., Diabetes, vol. 87, no. 1, 1952
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MEETINGS

Dr. Ziegler of Española Elected President of New Mexico Medical Society

Dr. Samuel R. Ziegler of Espanola was elected president of the New Mexico Medical Society at its 75th annual meeting in Santa Fe, May 15 - 18. Dr. Stuart W. Adler of Albuquerque was the retiring president.

Other new officers elected were Dr. James C. Sedgwick, Las Cruces, president-elect; Dr. Louis M. Overton, Albuquerque, vice-president; Dr. Omar Legant, Albuquerque, secretary-treasurer.

Six new members of the Board of Supervisors are Dr. Richard Pousma, Gallup; Dr. Pierre Salmon, Roswell; Dr. William J. Hossley, Jr., Deming; Dr. James McCrory, Santa Fe; Dr. Alfred Jensen, Hobbs; and Dr. William Natoli, Los Alamos.

Elected as counselors were Dr. Gerald Slusser, Artesia; Dr. George Prothro, Clovis; and Dr. Wendell Peacock, Farmington.

Dr. Samuel R. Ziegler

Guest speakers were Lauren V. Ackerman, M. D., Professor of Surgical Pathology and Pathology, Washington University School of Medicine, St. Louis, Missouri; Philip Hodes, M. D., Professor of Radiology, University of Pennsylvania School of Medicine, Philadelphia, Penn.; William P. Longmire, M. D., Professor of Surgery, University of California at Los Angeles School of Medicine, Los Angeles, California; I. Arthur Mirsky, M. D., Professor and Chairman of the Department of Clinical Sciences, University of Pittsburgh School of Medicine, Pittsburgh, Pa.; I. Snapper, M. D., Director of Medical Education, Beth-El Hospital, State University College of Medicine at Brooklyn, N. Y.; Theodore C. Panos, M. D., Professor of Pediatrics, University of Texas Medical School, Galveston, Texas; and James R. Willson, M. D., Professor and Chairman of the Department of Obstetrics and Gynecology, Temple University School of Medicine, Philadelphia, Penn.

The next meeting of the Society will be held in Albuquerque.

The New Mexico Orthopaedic Society was combined with the New Mexico Chapter of the Western Orthopaedic Association and the group will have its next meeting at the Southwestern Medical Association meeting in El Paso October 9 - 11.

Born in Hanover, Pennsylvania, Dr. Ziegler received his B. S. from Otterbein College in Westerville, Ohio, and his M. D. from Western Reserve University Medical School. He took his internship and surgical residency in the Youngstown Hospital Association in Youngstown, Ohio. He began the practice of medicine in Youngstown.

He served for three years with the Army Medical Corps, with 24 months overseas in the South Pacific, emerging with the rank of Major. In 1946, he moved to Espanola, where he has since been engaged in the practice of general surgery.

Dr. Ziegler is a member of the International College of Surgeons and a member of Phi Rho Sigma. He is a Past President of the Santa Fe Medical Society, served as Vice-President of the New Mexico Medical Society from 1955 to 1956, has been a member of the Board of Supervisors for two years and a member of the Council of the Society. He is a Past President of the Espanola Lions Clubs and is a member of the United Brethren Church. He and his

wife, Isabel, have two sons, Samuel R. Jr., 14, Norman, 13, and a daughter Julia, 6.

The complete text of Dr. Ziegler's address at the meeting is as follows:

At the turn of the century, the busy physician had to limit his pace to that of his horse. In most instances his office was part of his home and the telephone, although invented twenty-five years earlier, had not reached the point where it was an everyday convenience in the average home. Hospitals in small communities were almost non-existent and only the seriously ill were sent to these institutions in the larger centers.

Disease brought about an extremely close Doctor-Patient relationship. To the family, he was internist, surgeon, psychiatrist and obstetrician. They were solely dependent upon him. In this respect I was impressed by a recent statement issued under the aegis of the A. C. S. by Dr. Paul R. Hawley.

"Every family needs a medical adviser upon which it can rely, whether or not such a need is recognized. The family physician is the only practitioner of medicine who can fill this role properly . . ."

Changing Environment

This changing environment has brought all but six-tenths of one per cent of our population within 25 miles of a doctor and with today's high speed automobile, has reduced that 25 miles to a matter of minutes. With this trend, medicine and its rapidly developing specialties became centralized in larger communities about large and well equipped hospitals; and the family doctor, as we once knew him, gradually became a picture on the wall. He became a screen by which the patient was sent to Dr. A for his sinuses, Dr. B for his heart and Dr. C for his urological problem, and so the story goes . . .

Advances in medicine, miraculous as they are, have in themselves produced changes in our environment. People live longer because of better medical facilities. The average life expectancy, at the turn of the century, was 46 years.

Now the average life expectancy is 65 years or more and the problems of geriatrics present themselves, not only medically but sociologically. These people must be clothed, fed, housed and made to feel useful, as well as having their ills cared for. The problems of caring for a greatly increased elderly population is not simple either sociologically or medically.

Pneumonia Controlled

Pneumonia is no longer our chief cause of death, thanks to the miracle of antibiotics. Polio appears to have been conquered; infant mortality is decreasing and more young people enter or stay in our ranks and population figures increase by leaps and bounds. With this come the problems which accompany an increase in population, need of better housing, more ideal communities, jobs for more people and more hospital beds. Heart disease, arthritis, multiple sclerosis, muscular dystrophies and cancer, which in years past were minor killers, compared to pneumonia and tuberculosis now occupy our more serious thoughts.

Our rapid progress in medical research and discovery has made it impossible to keep up with all the advances. Because of this, more men in recent years have turned to some special phase of medicine in order to utilize better their skills, rather than cope with the broader aspects of a general practice in a smaller community with the inevitable and incessant ringing of the phone. It is not an unusual occurance to pick up a magazine and read about the young doctor who has left his beloved small community and his general practice to specialize, and invariably, the reasons given are that the individual could no longer face the rigors of his practice —had too little time with his family, or got too little in return for services rendered.

Specialist Important

May I say that I do not mean by these remarks to belittle the specialist in any way. He is an important and absolutely necessary part of the practice of medicine today. Medical Science would not have made such rapid progress without them. The trend is more the result of, rather than the source of the changes in our sociological environment.

This trend in medicine has accompanied the trend of change from a rural to a more urban existence. I shall mention a few factors which it seems to me have contributed to this change: (1) our rapid increase in population, (2) more attractive jobs in the larger centers, (3) the difficult plight of the farmer and rancher, and (4) the increased conveniences in our larger communities. Such changes in our social order cannot help but be reflected in the practice of medicine.

Small Towns Suffer

With this trend, the small community has suffered the loss of a convenient and adequate medical service. In recent years, medical schools have geared part of their curriculum to inspire young physicians to enter these small communities. Many of our schools have risen nobly to the challenge by showing young men the opportunities and helping them prepare to practice efficiently in these small town areas. The small community itself has accepted the challenge in many instances, and, awakening to its right to have up-to-date medical facilities, has utilized the Hill-Burton Act; or being driven by its own necessities, has constructed its own community hospital. Even then, the small community has at times experienced some difficulty in attracting physicians.

A recent survey of young men and women nearing the completion of their college courses revealed that

an astoundingly small number of them were interested in the service professions. As a result medical schools are not getting enough well qualified students. A young person entering the "earning years" is much more interested in security than service. Here it is that we as physicians must help these young people to see the advantages of such service and to sense the great personal stimulation and satisfaction that comes from it. We must rise to meet this challenge.

Something For Nothing

With all this change there has grown up a generation which has received a great deal for little or nothing and a great many have continued to expect "something for nothing." One only has to read "The Trojan Horse" by Dr. Orr, to see how this situation continues to be expanded medically by the V. A. With this something for nothing idea, the malpractice suit rate has jumped by leaps and bounds.

But I wonder, as we look at ourselves critically, have the changes in our environment, the idea of something for nothing, the tremendous advances in medical knowledge, been solely responsible for our problems? What about the threat of socialized medicine, the increasing number of mal-practice suits, the occasional criticism, all too frequently hurled at us?

Have we become cold and impersonal in the rush of our practice? Have we forgotten the close bonds which should exist between patient and physician? Do we forget the human side and all too often deal with the patient as some sort of machine with no feelings or emotions?

Urgent House Call

Have we become too busy in our offices to make that urgent house call? Is it easier in this day of modern transportation to tell the patient to meet us at the hospital emergency room instead of the more personal atmosphere of their home? Are we too busy or too disinterested to participate in a public relations program? Have we become apathetic about everything, but making a living for ourselves? I do not make these comments as statements of fact, but simply raise them as questions, realizing that the doctor has become increasingly busy now that people are as close to him as their telephone, have we given the patient better diagnosis, finer treatment and more expert overall care at the sacrifice of close personal relationship?

I realize too, that it is difficult to feel relaxed at any moment. Because of his busy practice the doctor's reading time is cut short. He has all too little time with his family and the weight of many responsibilities concerning life and death leave him preoccupied and many times silent and uninteresting company for those who wait about the supper table for him.

Books Written

Books are written with such titles as "The Doctor has Three Faces," and he is described by this author as someone who is known to his family as a "ring of the phone, a stir in the hall and a slamming door." Through all this has part of our traditionally close doctor-patient relationship been lost? Has the revered place of the doctor in the home slipped to that cold impersonal level, I asked about earlier? Again, I reiterate that I do not make these remarks as statements of fact, but rather pose them as questions. Has this happened?

The increasing masses of population have increased problems of office and hospital care. The rapidly increasing cost of living and the problem of inflation has skyrocketed the cost of hospital care and increased office overhead; and we have been accused of overcharging or raising prices, although a review of doctors fees will reveal them to be only insignificantly increased over 1940 since which time the cost of living has increased over one-hundred per cent.

Many Accusations

We have been accused of inability to properly care for the needy, and it is charged that our hospital expenses have been so great they are out of reach of the average family and over our heads has consequently been hung the challenge of socialized medicine which many vote-hungry politicians hold out to a public, uneducated in the pitfalls of "government medicine," like a juicy plum which unthinkingly they construe as something for nothing.

In answer to the challenge, voluntary medical insurance has been a partial answer to our problem, and many plans have been pondered and discarded only to be reconsidered and again discarded, in search for a more satisfactory answer. An active public relations program has been instituted, lead by the A. M. A. and filtered down to our local societies. We are encouraged to discuss more freely with patients our fees and our diagnoses and out of all these problems which have been mentioned, have come many definitions of today's physicians.

Physician-Citizen

Dr. Elmer Hess, in a recent address said, "The physician must not only have the narrow concept that he is a physician but the all important concept that he is a physician-citizen with all the obligations and responsibilities that go with it." "He must put service before remuneration, he must have a strong faith in spiritual values, he must take an active interest in all educational programs within the community and should be active in the chamber of commerce."

Governor Arthur B. Langlie said in his address to the mid-winter A. M. A. session in Seattle, "We are living in a sick world and doctors must take time to contemplate the broader face of problems that plague this country and the world." In his presidential address before the North Central Medical

(Continued on page 433)

PHOTO REPORT
on the
75th ANNUAL MEETING
of the
NEW MEXICO MEDICAL SOCIETY
in Santa Fe, May 15-18

This is the art gallery of the Museum of New Mexico, where sessions of the annual meeting were held.

Left to right Dr. Junius Evans, Las Vegas, Ralph Marshall, Albuquerque, Executive Secretary of the Society, and Dr. Louis M. Overton, Albuquerque, new Vice-President.

Left to right are Dr. Charles Montgomery, Roswell, Dr. C. M. Thomps Albuquerque, and Dr. John Craven, Odessa.

Left to right are Dr. P. G. Cornish, Albuquerque, Dr. William W. Kr baugh, Albuquerque, and Dr. William P. Longmire, one of the guest spea at the New Mexico Chapter meeting of the American College of Surgeon

Left to right, below, are Harry Fogelson, Denver, Milex, Dr. I. Arthur Mirsky, one of the guest speakers, and Dr. H. R. Landmann, Santa Fe.

Left to right at the Radiologist and Pathologist luncheon meeting a C. C. Lushbaugh, Los Alamos, retiring Secretary - Treasurer of the group A. E. Margulis, Santa Fe, and Dr. Lauren V. Ackerman, one of the speakers.

Left to right are Dr. Miles Johnson, Albuquerque, Secretary of the New Mexico Orthopaedic Society, Dr. Myron Rosenbaum, Albuquerque, President of the New Mexico Orthopaedic Society, and Dr. James Miles, Denver, guest speaker, who spoke at the Society's luncheon.

Left to right are Dr. Marcus Smith, Santa Fe, Dr. Murray. M. Friedman,

Left to right are Dr. S. Heinemann, Carlsbad, Mrs. W yloge, Santa Fe, and Dr. J. F. Haynes, Carlsbad, in one

t to right are Mrs. Bert Kempers, Albuquerque, new President of New Mexico Medical Society Auxiliary, Mrs. Brian Moynahan, nta Fe, outgoing Recording Secretary of the State Auxiliary, and t. Robert Boice, Roswell.

Left to right are Mrs. George Garrison, Oklahoma City, Director of the National Auxiliary of the American Medical Association, Mrs. Howard M. Seitz, Santa Fe, President of the Santa Fe County Medical Society Auxiliary, and Mrs. F. R. Brown, Roswell, outgoing Treasurer and Corresponding Secretary of the State Auxiliary.

t to right are Seth K. Hofmann Albuquerque, Park Davis Co., Dr. Zigmund W. Kosicki, El Paso, and Keith heim, Denver, Park Davis and Co.

Left to right are George Howell, El Paso, Meade Johnson and Co., John H. Arnold, Albuquerque, U. S. Vitamin Corp., Tom McLaughlin, Albuquerque, Eaton Labs. and Lyle Bartlett, Lederle Labs., Midland, Tex.

t to right are Doug Spencer, Albuquerque, Ciba, Bill ewski, Denver, Ciba, and Mrs. A. J. Jenson, Hobbs, N. M.

Left to right Stan Kasprzycki, San Gabriel, Calif., Desitin Chemical Co., Dr. Homer Musgrave, Albuquerque, and Mrs. Oscar Syme, Albuquerque.

C. Housen (left) Albuquerque, A. H. ns Co., Inc., and Dr. H. M. Gibson, El

Tom Washington, Albuquerque, J. B. Roerig and Co. (left), and Dr. R. F. Crane, Portales, N. M.

Dr. R. H. Weaver, (left) Los Alamos and Bob Gregory, Albuquerque, G. D. Searle and Co.

t to right are Sonny Wright, Albuquerque, E. R. Squibb Sons, and Drs. Leonard Seidenberg, Albuquerque. Both

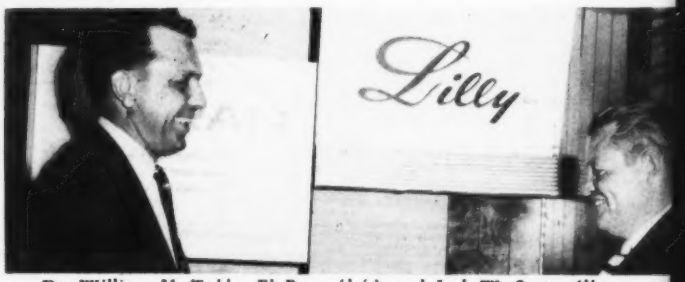
Left to right are Alex Walker, Albuquerque, Winthrop Labs., Howard Clemens, Ft. Worth, Alcon Labs. Inc., Mrs. Harry Fogelson, Denver, Milex Co., Dick Carruthers, Albuquerque, William S. Merrill Co., and Leon Mboon,

r. J. Robert Willson of Philadelphia, one of the speak-s, looks over an exhibit, presented by Carrie Tingley ospital, as shown by Dr. Eugene Chapman of Carrie ingley Hospital at Truth or Consequences, N. M.

Dr. E. V. Kompaniez of Temple Hospital in Beverley Hills views a scienti exhibit which he brought from California. Dr. V. P. Satinsky, who participa in the preparation of the exhibit, did not attend the meeting.

Pat Kilbane, Phoenix, Organon, Inc., (left) and Mrs. Elaine Swanson, R. Santa Fe.

Dr. J. L. McCrory, Santa Fe, (left) and Stanley Greenwell, Albuquerque, Schering, Corp.



Dr. William M. Tubbs, El Paso, (left) and Jack W. Scott, Albuquerque Lilly and Co.

Left to right Dr. William Hentel, Albuquerque, Vet-erans Administration Hospital, Dr. Aaron Margulis, Santa Fe, and Dr. Ray Young, Santa Fe, examine the Albuquer-que Veterans Administration Hospital Exhibit.

Left to right are Dr. Paul Lee of Los Alamos, Dr. Elliott Wyloge, Sant and Dr. Henry Plenk, Salt Lake City.

Left to right are A. E. Peterson, Ayerst Laboratories, Joe Bryan, Albuquerque, Pfizer Laboratories, R. L. Hyer, El Paso, Winthrop Laborator Jack Ulrich, Dallas, Lloyd Bros., Inc., Ted C. Sanderson, Albuquerque, Warner-Chilcott, Inc., Les La Fortune, Albuquerque, Upjohn Co.,

Conference, Dr. P. H. Woutat of Grand Forks, N. D., in a long 500 word definition of a modern physician entitled, "Counsel of Perfection," had this to say, "The ideal physician must, of course, be of fine and scholarly appearance, have great intellectual capacity and faultless personal habits, and inspire the confidence of his patient and the respect of all others. He must be active in local and state medical societies, attend meetings regularly and accept officership and committee assignments eagerly and perform his duties quickly and with great tact and diplomacy." He went on to say, "He must be a good family-man and he must have a wife who is gracious and tactful and who abhors mink coats and other vulgar extravagances. He must spend lots of time at home with his children."

Answer to Challenge

What then is our answer to the challenge of socialized medicine and our changing environment? In the words of Dr. Murray, A. M. A. president, "Today the Medical Profession along with business and industry is caught between those who desire to promote sound government and those who desire even more intensely to perpetuate party power. Unfortunately in recent years a benevolent Federal Government appears more attractive to the voting public than the preservation of individual freedom."

In this respect we have met rebuffs but in our philosophy of life, I think we would find Browning's word a stimulation:

Then welcome each rebuff
That turns earth's smoothness rough
Each sting that bids nor set nor stand but go

Profound Words

Some fifty-four years ago on Jan. 6, 1903, Sir William Osler spoke profound words before the New Haven Medical Association. These words seem to me to remain quite applicable today, "For better or worse there are few occupations more satisfying than the practice of medicine, if man can but once get oriented and bring to it the philosophy of honest work, the philosophy which insists that we are here not to get all we can out of life about us but to see how much we can add to it. The discontent and grumblings which one hears have their source in the man more often than in his environment — but let me say this of the public — it is rarely responsible for the failures of the profession."

Example and Conduct

The first part of our answer lies within each one of us individually. By our example and conduct we can make each person feel that he wants to continue the freedom of choice of a doctor and that freedom of conduct within the medical profession is maintained, and that this is the only real way. Let us dedicate ourselves to this task.

Dr. Murray in his November speech said, "If I had just one wish for the coming year, it would be to command the time and talents of the 160,000 physicians in the AMA. I would set us all to the task of re-emphasizing the absolute necessity of patient and professional freedom. Let us never reduce the quality of service we render to our patients and never lose the personal touch in medicine. Where there is any opportunity to improve upon our medical care, let us seize it and show our abilities to do an outstanding job. Satisfied patient-customers will give us deserving support when we need it."

Organized Strength

Certainly our first line of defense is our individual attitude and conduct but that alone is not enough. We are combating organized politics and more highly organized party groups who are vote and power conscious. We too must use our organized strength. In November of last year, I had the pleasure of attending the mid-winter AMA as a representative of this group. My function was purely that of an onlooker, but I was impressed by the unselfish purpose of the men I saw in action there. I was impressed by their desire to maintain freedom of choice of physician and freedom in the conduct of medical practice. I was more impressed by their consideration of the patient, his emotions, his dignity and his protection. I was most impressed by their unselfish giving of time and effort to achieve the ideals of our profession.

I realize that a physician's livelihood is dependent on him alone and he pays dearly for the time he spends away from an active practice. It therefore becomes easy for the younger man to say, "I cannot afford the time away from practice" and the older man to say "I have done my part, let someone else do it." It will take the wholehearted effort of us all. We cannot become apathetic.

Halls of Congress

It has been said that we must remember too that the destiny of medicine can be determined to a large degree in the halls of congress which behooves us to take an even greater interest in those who elect the congressmen. Sympathetic understanding of our position by federal legislators through the voting public will be an insurmountable deterrent to the forces supporting state medicine.

Governor Howard Pyle, administrative assistant to the President said last year before the annual meeting of State Society Presidents, "Those with whom you do not agree will be arguing for things. Be prepared to do likewise or risk fatal failure. Be prepared to take the initiative with wiser and better plans. There is little percentage in coming from behind in areas where we know there is going to be a constant and continuing pressure as the years and days go on."

Initiative

If we are to see freedom of choice of physician

and medical conduct survive, if we are to stave off the inroads of socialized medicine with its federal control and high administrative costs, we cannot wait for an attack and then counterattack — we must take the initiative and must provide able and successful leadership in this direction.

Basically, the answer to the problem lies in each of us as individuals for it is the close relationship between the patient and his doctor which in the final analysis will be the foundation for the continuation of our present system of medical practice.

Along these lines, I should like to set these several goals for the coming year. First of all, I should like to see our state and local public relations programs expanded. I feel that our public relations committee has done an excellent job in the past year. I do not think the response from the members of the society was as good as it should have been, but that nevertheless does not detract from the sincerity of the committee.

I should like to see the public relations committees of the local societies work more closely with our state committee and express more fully their ideas and desires. I should like to see the initiation and active promotion of indoctrination programs of a more intense and thorough nature in all county societies.

County Level

This I do not think is a final function of your state society, but something which should be handled on the level of the county society, to meet the local needs. One of our own members, Dr. Babey, from Las Cruces, has very ably outlined this problem in the March, 1957 publication of *Southwestern Medicine,* and I refer that article to you as very good reading.

I should like to see all of us rededicate ourselves to the ethics of our profession and to reemphasize in our minds the spiritual values which Dr. Hess so definitely brought out, for without these spiritual values the service which we render will be cold and meaningless.

In order for us to function efficiently as a state society, certain committees are necessary. Many of you have already been approached concerning these committees. Many of you have been asked to serve again. Your personal influence and ideas are absolutely necessary to the continued success of these committees. Some new faces will appear because we think your experience and talents are needed. I ask your help and sincere cooperation in attempting to accomplish the task we have set out to do.

Quotation

In closing I should like to quote again from Gov. Pyle's address. He ably illustrates the situation in the historical cycle of other peoples in other times.

The rise has been
From bondage to spiritual faith
From spiritual faith to courage
From courage to freedom
From freedom to abundance
Then comes the warning—
From abundance to selfishness
From selfishness to apathy
From apathy to dependancy
From dependancy back to bondage
Where are we in relation to the Cycle?

Clinical Note from Grand Rounds

These notes are abstracts of opinions expressed to staff members during case presentations at the Friday Grand Rounds of the Pratt Diagnostic Clinic — New England Center Hospital.
chapter) in Phoenix, Arizona.

In recent years it has been recognized that there are patients with bleeding disorders characterized by prolongation of the coagulation time, yet who do not have hemophilia. The addition of hemophilic blood in vitro will cause it to clot. Those patients have deficiencies of other factors normally present in plasma, plasma thromboplastic component (PTC) or plasma thromboplastic antecedent (PTA). These also may be hereditary defects. Antihemophilic globulin is not effective in controlling the bleeding. Whole blood or plasma is usually necessary as in hemophilia.

Guest Speakers for Southwestern Medical Association Meeting Announced

Nine distinguished guest speakers, who will address the Southwestern Medical Association meeting in El Paso October 9, 10 and 11, 1957, have been announced by Dr. Celso C. Stapp, President of the Association. They are as follows:

Surgery

Oscar Creech, Jr., M. D.
Professor of Surgery, Tulane University, New Orleans, La.

Medicine

William Parsons, M. D.
Professor of Internal Medicine, University of Virginia School of Medicine, Charlottesville, Va.

General Practice

J. S. DeTar, M. D.
President, American Academy of General Practice, Milan, Mich.

Pathology

E. E. Muirhead, M. D.
Professor of Pathology, University of Texas Southwestern Medical School, Dallas, Texas.

Orthopedic Surgery

Frederick C. Bost, M. D.
Clinical Professor of Orthopedic Surgery, University of California School of Medicine, San Francisco, Calif.

Obstetrics and Gynecology

Edward A. Banner, M. D.
Assistant Professor of Obstetrics and Gynecology, Mayo Clinic, Rochester, Minn.

Ophthalmology

Phillip Thygeson, M. D.
Clinical Professor of Ophthalmology, University of California School of Medicine, San Francisco, Calif.

Anesthesiology

Robert A. Hingson, M. D.
Professor of Anesthesiology, Western Reserve University School of Medicine, Cleveland, Ohio.

Otolaryngology

Howard P. House, M. D.
Professor of Otolaryngology, University of Southern California School of Medicine, Los Angeles, Calif.

Headquarters for the meeting will be in the Hotel Paso del Norte in El Paso.

El Paso Doctor Named to Dermatology Section of AMA

Dr. Leslie M. Smith of El Paso was named Vice-Chairman of the Section on Dermatology of the American Medical Association at the Association's annual meeting in New York City.

Typical Doctor Works Sixty Hours A Week, Magazine's Survey Shows

"For every eight hours the typical American works, the typical physician devotes twelve hours to the practice of medicine."

So reports *Medical Economics*. The magazine bases its report on a survey of the doctor's economic status.

"Whether the doctor practices alone, in partnership, or in a group, his working hours are about the same. Nor do they vary much by income, region, or years in practice."

"But working hours do vary according to field of practice, size of community, and number of patients seen daily. For example, the typical G. P. puts in about an hour more a day than the typical specialist.

Dermatologists generally work the shortest medical week: some forty-two hours. Neurosurgeons, on the other hand, generally put in the longest week: sixty-six hours.

Typical general surgeons, internists, pediatricians, and general practitioners work sixty hours a week.

Coming Meetings

First American Congress of Legal Medicine and Law-Science Problems to be Conducted by the Law-Science Institute of the University of Texas at the Hotel Morrison, Chicago, July 8 - 20.

Postgraduate Medical Assembly of South Texas, 23rd Annual Meeting, The Shamrock Hilton, Houston, July 15-17.

American Fracture Association, September 30, October 1 and 2, 1957, in El Paso. Dr. W. Compere Basom is in charge of arrangements.

Southwestern Medical Association, October 9, 10, 11, in El Paso.

Texas Surgical Society, El Paso, April 7 & 8, 1958.

Fifth International Congress of Internal Medicine, Sheraton Hotel, Philadelphia, April 24-26, 1958.

THE PRESIDENT'S COLUMN

The Medical Political Problem

By Celso C. Stapp, M. D., El Paso

Do we as doctors really know what is happening in our professional politics? It is actually quite surprising how well we have done when we survey the situation and find how few have been really diligent in medical politics and how few are active in the medical community.

The dedication of these few, who have been carrying the load, has been phenomenal in most instances. By the same token it is appalling how many pay nothing more than lip service to what is being done. Most of this is in the form of complaint. It is high time that we all become more diligent and put our shoulders to the wheel and help.

Too Many Meetings

Granted we have too many meetings to attend and that some are not worth going to. That is our own fault and we should correct it. In any community of over fifty thousand population there are quite a few medical meetings that are very poorly attended.

Our county medical societies suffer the most as there is no compulsion to attend, whereas the attendance at staff meetings at the hospitals have penalties for absence. The county medical societies should have the best attended meetings as they represent home rule in medicine.

This should be the forum for debate of not only medical political problems but also scientific and economic problems. The county medical society should be the body to direct and instruct delegates to state and national medical association meetings.

Scientific Meetings

The best meetings that may be attended are those of a purely scientific nature on a regional and specialty organizational basis. Such is our own Southwestern Medical Association meeting. These Southwestern meetings are wonderful and from them we learn a great deal; but they do not deal with the responsibilities of directing the policies and ethics of the profession.

Within our network of local medical organizations we also have many committee meetings. Some of these are scheduled merely to look good on paper. The first of the year I missed a committee meeting but received a formal set of minutes of the meeting which in part stated, "A general discussion was held and no conclusions were reached."

For Three Years

I am sure that this was true because for the past three years the same thing has happened. The fact that the committee exists looks good on paper but it is certainly worthless. A full list of such meetings should be reviewed locally and the useless ones abolished and the worthwhile consolidated into a truly functional organization.

Too many hospital staffs are trying to do the job of the county medical societies. Some of this is done in the name of staying accredited. We can tame the accreditation monster if we do the job locally in the county medical society.

This is our profession and we should maintain it at proper high and dignified level commanding the respect of the community as a whole. This will take effort from all of us and the results will be gratifying to all. Those who have been so dedicated to doing the job for us would be the first to rejoice.

OBSTETRICS

Obstetric Oxygenation: Valuable Routine Especially During Forceps Assistance

Dunlap, J. C., Texas State J. M. 52:806, 1956

To prevent intrapartum anoxia, believed responsible for most complications in newborn infants, 100 per cent oxygen was administered to 799 unselected patients before and during delivery of 791 single infants and 8 pairs of twins. There were no maternal deaths, no "failed forceps" and no Cesarean sections after engagement occurred. In 63 deliveries assisted by mid-forceps there was neither mortality nor morbidity.

Clinical Clippings, March, 1957.

ORIGINAL ARTICLES

Factors in the Development of Peritonitis*

By James H. Clements, 1st. Lt., M. C., William Beaumont Army Hospital, El Paso

The peritoneum, a smooth, thin, lustrous, translucent membrane invests the abdominal viscera and lines the abdomen, the largest cavity of the body.

The surface area is equal approximately to that of the skin and is considered in many respects to be an independent organ. The folds, bands, spaces and fossae of the peritoneum act as a channeling mechanism in many pathologic states, particularly peritonitis or inflammation of the peritoneum.

Although primary disease of the peritoneum is rare, there are only a few intra-abdominal diseases in which the peritoneum does not play a part. This structure is held in great respect in early diagnosis of intra-abdominal disease in order that ominous peritoneal signs indicating disaster may be averted.

Adequate Blood

The peritoneum is provided with an extra-ordinarily adequate blood supply from the branches of the abdominal aorta with venous return by way of the inferior vena cava. Abundant lymphatics of the peritoneum find their way to the thoracic duct by way of abdominal, diaphragmatic and mediastinal lymph nodes.

Nerve supply to the visceral peritoneum is maintained by the parasympathetic or vagus nerves and by its antagonist system the sympathetic nerves. The parietal peritoneum receives its nerve supply through the lower intercostal and lumbar spinal nerves, not to exclude the phrenic nerve which supplies the central diaphragmatic peritoneum.

Although the concept of peritoneal stoma has been discarded, the surface layer of flat polygonal cells that line the peritoneum are considered in many quarters to be cells of the reticulo-endothelial system and have truly remarkable barrier and scavenger functions.

Remarkable Capacity

The physiology of the peritoneum is intimately related to its anatomic make-up. Its remarkable capacity to handle insult must be credited to its ability for absorption, disposal of foreign invaders, nervous reaction to stimuli, and intrinsic potential for repair.

The almost frictionless surface of the abdominal viscera is bathed with a yellowish fluid containing a leukocyte count of approximately 2,300 of which about 45 per cent are histiocytes with the remainder being made up of basophils, eosinophils, and lymphocytes. Only a few neutrophils are present in these few cubic centimeters of fluid except in disease when the entire picture is changed.

The normal peritoneum in experimental animals will absorb as much as 8 per cent of their body weight in fluid in one hour. Poisons introduced intra-peritoneally are almost as rapidly fatal as if they were introduced intravenously. Although the peritoneum ordinarily obeys the laws of osmosis and diffusion, it is also known to act as a selective semi-permeable membrane that is controlled by intricate cellular enzyme systems and the relative electrical charges of particles.

The rate of absorption is increased with isotonic solutions, temperatures approaching that of the body and increased peristalsis. The rate of absorption of gases is relatively rapid for the first few hours after introduction and then decreases to a point that becomes almost imperceptible.

Foreign Invaders

Particulate matter, bacteria, and blood, acting as foreign invaders upon the peritoneal reticulo-endothelial surface meet with forceable mechanisms for removal. These include cellular phagocytic transfer into lymphatic channels, active phagocytosis by the living cells themselves, and impaction of particles between one or more cells.

This process is thought to be enhanced by the production of relative positive and negative pressures through action of the diaphragm and anterior abdominal musculature acting somewhat similar to a pump of the lymphatic plexuses. Other lesser influences on this process can be enumerated as: contractility of heart musculature, heart rate, tissue turgor, lymphatic vessel integrity, amount of peristalsis, and type of respiration.

There appears to be a definite increment in this removal process as the diaphragm is approached which was, of course, early reasoning for the beneficial effects of the Fowler's position which was used to allay absorption of toxins.

Certainly this position can be defended from an anatomical standpoint, whereby gravitation of toxins producing inflammatory suppurative processes are directed to a more therapeutically efficacious site.

*From Symposium on Surgery in Acute Trauma delivered at William Beaumont Army Hospital.

Localization of Pain

The localization of pain by mechanical, chemical or electrical stimulation of parietal and diaphragmatic peritoneum usually produces pain as follows: Stimulation of the central region of the diaphragm produces pain in the neck and shoulders; whereas, stimulation of the peripheral region produces pain in the lower costal or upper abdominal areas.

Stimulation of the anterior parietal peritoneum produces pain on the surface of the abdominal wall within an inch of the point stimulated. The anterior and lateral portion of the peritoneum has a much more dense nerve supply than the median portion of the posterior abdominal wall and the pelvic peritoneum.

The reaction of the visceral peritoneum to painful stimuli is much more obscure. Burning, cutting and crushing of this membrane produces only slight pain or none at all; however, distention of the visceral peritoneum by concommittent distention of the intestinal lumen produces a severe dull pain in the periumbilical and/or midabdominal region if the small bowel is involved and in the lower abdominal region if the large bowel is involved.

Pain reflex pathways have not been mentioned, but certainly they must have a large part in the production of shock, tachycardia, bradycardia, apnea, hyperpnea, vomiting, nausea, diarrhea, ileus, to mention a few that occur when peritoneal disease or rough peritoneal manipulation reacts unfavorably upon the respiratory, vasomotor, cardiac and other centra-nervous system centers.

Potential High

The intrinsic potential for peritoneal repair is gratifyingly high; however, since the rate of reparative processes vary in different individuals, it follows that any given peritoneal repair will necessarily be dependent on intrinsic influencing factors such as diet, vitamin sufficiency, age, nitrogen balance, mechanical and chemical stimuli for repair, etc.

There will always be extremes of response to injury, but the average individual will have complete epithelialization of the peritoneal surface taking place between the seventh and tenth day after injury.

This process, of course, is always altered by sepsis and/or chemical intestinal secretions and the virulence, rate, and duration of exposure to the peritoneum. It is likewise altered by the relative adequacy of the blood supply, presence of hemorrhage, degree of necrosis, and the amount of suppuration.

Decisive Factors

All of these previously mentioned anatomical and physiological factors have a decisive role in the development of every case of peritonitis. Clinical factors in the development of peritonitis are merely reflections of the pathologic effects of the anatomic and physiologic environment.

Peritonitis is the most common and serious insult that the peritoneum must encounter. Varied clinical manifestations of peritonitis makes classification of no practical prognostic or therapeutic value unless it is based on the etiology and extent of the pathologic process.

Etiologically a clear distinction must be made between septic, aseptic, and mixed peritonitis. Subclassification can be made as to the particular bacterial or chemical irritant involved.

The extent of the peritonitis may be placed in a diffuse or local classification. Both classifications can then be combined for a more explicit classification for example diffuse aseptic meconium peritonitis.

Acute, subacute and chronic may likewise be added for a more descriptive completeness.

Classification Discussed

A classification of peritonitis will not be attempted here; however, the following must be considered in a classification of peritonitis. Under the septic variety must be included all of the bacterial organisms that may cause peritonitis by virtue of perforation of a viscus, hematogenous dissemination, or traumatic entry into the peritoneum.

Under the aseptic variety must be included agents such as bile, blood, chyle, liquor of cysts, meconium, pancreatic secretion, talc and urine. Hasty addition should be made of the fact, however, that in the more severe forms sepsis usually eventuates at some course of the disease.

The mixed type of peritonitis may be any combination of aseptic and septic causes as for example are usually seen in bile peritonitis with secondary invasion by anerobic organisms from the liver.

Virulence Important

Virulence of the irritant in peritonitis is important clinically, because ordinarily the more irritating the cause, the more severe the illness and the sooner diagnostic symptoms and signs develop. This also has a definite effect on the reversibility of the process, which is usually dependent on the extent of necrosis of the peritoneum and abdominal viscera lined thereby.

The symptoms of peritonitis seen by the physician are likewise modified by the length of time lapsing between onset of the illness and consultation with the physician, whether or not a peritoneal insult has been diagnosed and time is being allowed for localization to occur, whether or not the peritonitis developed postoperatively, or whether or not it is a case seen for the first time in its terminal stages.

Symptoms and signs of peritonitis may be divided into two groups, the early and the late. The early

symptoms and signs are pain, vomiting, anxious facies, abdominal muscular rigidity, superficial hyperesthesia, collapse and temperature alteration. The late would include collapse, temperature alteration, distention, intestinal paresis, and general toxemia.

Early Symptoms

The early symptoms and signs appear much more promptly when the disease process affects that part of the peritoneum described previously as parietal. Early symptoms and signs are more likely to be definite in young, well nourished, well hydrated, and non-obese individuals in contra-distinction to elderly, debilitated, or obese patients, in whom the late stage may develop insidiously because early symptoms were so mild as to attract little attention.

By virtue of the less sensitive nerve supply to the visceral peritoneum, the pelvic parietal peritoneum and the median posterior parietal peritoneum more obscure early signs and symptoms are manifested. Disease in the most sensitive portions of the parietal peritoneum becomes obscure only when late changes render the nerve supply to these areas functionless.

Pain is Symptom

Pain remains, however, a constant early symptom of peritonitis and even after the irritant has become diffuse, local tenderness can usually be appreciated in the area of greatest peritoneal soiling.

Vomiting is a more frequent occurrence at the onset of peritonitis if the proximal portion of the gastrointestinal tract is involved; however, diarrhea is many times seen in peritonitis involving the lower bowel.

Although the temperature in later stages of peritonitis may be subnormal, normal, or high, the temperature in earlier stages is usually elevated. The pulse rate in peritonitis is usually elevated in the earlier course of the disease whether the patient is febrile or not; however, in advanced disease a weak, thready pulse or "pulsus abdominalis" is apparent which may be irregular.

Early collapse in peritonitis is usually reversible; however, this is rarely so in the advanced case. As peritonitis progresses throughout the peritoneal surface ileus with distention becomes more and more apparent and no longer acts as a local protective process.

Muscular Rigidity

The degree and extent of muscular rigidity seen in peritonitis depends on the virulence of the insult and how widely distributed it may be throughout the peritoneal surface. The patient is likely to lie motionless in bed, with the legs flexed in order to relax abdominal muscle tension.

Tenderness is an almost constant finding except in late disease when it may have disappeared. The facies may be drawn and pallid, but typical hippocratic facies with sunken eyes, pinched nose, and apprehensive stare only accompanies the late collapse state.

In developing peritonitis, as an exudate begins to appear containing serum, fibrin and cells, a leukocytosis of the blood picture begins to appear. This leukocytosis varies with the cause and severity of the disease and may run from 12,000 to 50,000; however, a preponderance of polymorphonuclear forms are usually present. This response like the many others is dependent on the patient's age, debrility, and reaction to injury.

It again is closely related to virulence of insult versus defense mechanism. With formation of the peritoneal exudate fibrin deposition on the border of the lesion which acts to cement contiguous structures together tends to act as a limiting barrier to the spread of disease. Organization of this fibrin barrier acts to seal off toxic products from absorption and to, in effect, extraperitonealize the lesion.

Safe Beginning

A safe beginning in any case of developing peritonitis is to make an early diagnosis of its presence whether the exact pathogenesis of the developing disease can be elucidated or not at that particular time.

The diagnosis must be suspected before it can be arrived at early enough for optimum advantage to be taken of the "organ's unique anatomy and physiology."

Complete understanding of the development of peritonitis in the average individual and those at both extremes of life give the physician an opportunity for an early diagnosis of early disease.

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BOOKS

Epileptic Seizure

Edited by John R. Green, M. D., and Harry F. Steelman, M. D., Neurological Surgeons; Co-Directors of Seizure Clinics at St. Joseph's Hospital and the Arizona State Hospital, Phoenix

This symposium presents the latest information on every aspect of epilepsy — historical, diagnostic, therapeutic, educational, employment. Emphasis is on the epileptic as a whole, a person with a disease rather than a diseased person.

Anyone concerned with epilepsy — general practitioner, specialist, medical student, educator, employer, parent, in some cases even the epileptic himself — will want to read and should read this valuable book, a real contribution to epileptology.

Introductory Remarks

"Since the patient with epileptic seizures represents one of the commonest problems in medicine, each of the organizations meeting here together for the first time has much to contribute to his welfare. This may be research, clinical care, or social rehabilitation, and certainly all are important.

Based on proceedings of joint meetings of the Seventh Western Institute on Epilepsy, the Western Society of Electroencephalography, and the American Academy of General Practice (Arizona chapter) in Phoenix, Arizona.

"Prior to the time of Hughlings Jackson, less than a century ago, there was very little specific information about the nature of seizures. It was Jackson who first postulated that epileptic attacks originate in nerve cells of the gray matter of the brain and that the pattern of the seizure which follows depends on the anatomic location of these cells. Such a concept did much to lay the foundation for modern neurology and neurological surgery.

"Epileptic seizures occur in as many people as do active tuberculosis and diabetes, and four times more frequently than does poliomyelitis. They are most commonly a symptom of some disturbance of neurochemistry due to a pathologic change. Hereditary factors are uncommon. In discussing epileptic seizures one must, therefore, speak not in terms of 'epilepsy,' but of 'the epilepsies.'

"The program has been planned along practical lines for the general practitioner, internist, pediatrician, medical student, educator, employer and parent."

Now Simplified dosage* to prevent Angina Pectoris

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MONTHLY CLINICAL PATHOLOGICAL CONFERENCE
EL PASO GENERAL HOSPITAL

April 18, 1957

F. P. Bornstein, M.D. – Editor – Case No. 787

Presentation of case by Dr. W. R. Gaddis

History — Dr. Nathan Kleban:

A 52-year-old Anglo-American merchant entered the hospital on January 13, 1957 and died on January 19.

At 3:00 a. m. the patient wakened, vomited dark, later bright red, blood, passed several black stools, entered the hospital seven hours later.

X-ray examination of the upper gastro-intestinal tract with negative findings was performed 10 years before because of nausea. The patient had consumed excessive amounts of alcohol until six years ago, when he began to be troubled by arthritis. Prednisone was required to control joint symptoms in order that he could continue working.

Physical Examination:

The patient appeared pale and chronically ill. T. 99.2, P. 80. R. 20, B. P. 114/64. There were dental caries. Slight tenderness to palpation was elicited in the epigastric and umbilical regions. There were "deformities of fingers, toes and some of the larger joints".

Hospital Course:

A Sippy diet and vitamin K were prescribed. During the first 36 hours there were five black stools. Rectal temperature rose to 105.6. A cut-down was required to begin the first of 12 units of whole blood. Additional medications included morphine, meperidine, vitamin K, oxide, oral gelfoam powder, potassium, Myamine, Phenobarbital, Sparine, ACTH, hydrocortisone, and Levophed.

It was evident that blood continued to leak from the gastro-intestinal tract faster than it could be replaced. Forty-eight hours after admission a medical consultant recommended surgical intervention. X-ray examination of the esophagus, stomach and duodenum twenty-four hours after admission yielded no positive information in an effort to localize the site of bleeding.

Rectal temperature rose to 105.4. After prolonged shock, despite blood and other medications, the patient died six days after admission.

Laboratory:

X-ray: Upper GI series January 14: Negative for evidence of location of bleeding point.

January 13: Hb. 8.9; Ht. 32 per cent

January 14: Urine 1.010 and otherwise negative; Hb. 9.1; Ht. 30 per cent; WBC 18,800; Segs. 82, Lymphs. 16, Monos. 2.

January 15: Hb. 9.2; Ht. 26 per cent; RBC 3.15; platelets 140,000; bleeding time 30 seconds; coagulation time 2 minutes 15 seconds; prothrombin time 15 seconds, 100 per cent.

Co_2 18.9 meq/L; Cl 94 meq/L; BUN 30 mg per cent; K+ 4.9 meq/L; Na 135 meq/2

VDRL negative.

January 16: Hb. 16.0; Ht. 50 per cent.

January 17: Hb. 13.8; Ht. 48 per cent.

Clinical Discussion — Dr. W. R. Gaddis:

This case is that of a 52-year-old male admitted to the hospital with a diagnosis of upper gastro-intestinal hemorrhage. Now, is this a medical or a surgical problem? In cases of this kind it is an impossibility for us to regiment our thinking and find a routine procedure or approach to any one of these problems.

It is an unsatisfactory solution of the problem to say that all patients who have upper GI hemorrhage will be treated solely on the medical service or on the surgical service, as it is an impossibility for us to state the factors that have produced the upper GI hemorrhage.

Shock Condition

When this man was seen he was in a condition of shock. He had a decreased hemoglobin and showed signs of continuing blood loss. Outstanding in this man's history and in his physical findings, in addition to shock, is the presence of a rheumatoid type arthritis involving the fingers particularly; other joints were also noted to have the typical deformities.

A history of having taken prednisone over some period of time was given. The exact length of time doesn't come to my memory at the present and the dosage of drug was not readily available, but it was believed to have been upward of 20 mg. daily.

Etiology

Now in considering GI hemorrhage, let us first discuss etiology. It is axiomatic in medicine before we can treat any disease intelligently, we should know what it is and what is causing it. This is particularly true in the subject of upper GI bleeding.

As to the source of the bleeding, we have to decide whether this is really upper GI bleeding, or does it come from the naso-pharynx or the associated regions. It not infrequently happens that patients will bleed rather excessively from the posterior naso-pharynx and swallow the blood and then regurgitate it.

Is it esophageal, and if so, why? That brings up the question of the possibility of a tumor in that particular organ. Or does this patient have varices that are bleeding? With these things in mind we began to consider the anatomical factors in the production of this man's bleeding.

In addition we have to consider the possibility of disturbed physiology of the blood clotting mechanism such as certain blood dyscrasias, particularly those of platelet and prothrombin deficiency, defects in clotting and bleeding time and reactions to drugs. About these we don't know a great deal in this man's case because we had no access to his therapeutic record.

Circulating Platelets

You will notice in the record that he had a lower quantity of total circulating platelets but it was the opinion of the hematologist that this was probably not the responsible cause for his bleeding. His prothrombin time was 100 per cent normal.

In approaching a discussion of whether bleeding should be treated medically or surgically, we have to determine in addition to the etiologic factors involved, the duration and severity of the bleeding.

In a great many institutions today it is the plan for a patient with upper GI bleeding to be admitted to the medical service and be treated medically. If the condition is fairly satisfactorily controlled within 24 to 48 hours, it is treated medically.

If it is shown that the patient is not benefitted, the surgeon is called to treat the moribund patient and may or may not have good results. It is my personal opinion that this is a joint problem and that such a patient who is admitted to a service, be it medicine or surgery, should be simultaneously examined by the medical and surgical services.

This was the case with this man. He was admitted and the surgical staff was consulted. In approaching a decision as to whether a patient shall be referred to the medical or surgical service primarily, much depends on whether one is able to pin-point anatomically the source of the hemorrhage.

In this particular instance we have no history except for one episode in the past when he had had some epigastric pain which subsided rather promptly. He had no premonitory GI symptoms that had given him any trouble, so that we were dealing with a problem of chronic ulceration of a peptic type of either the stomach or upper small intestine and duodenum.

We could not so determine from a historical standpoint. This patient refused steadfastly to admit to the usual symptoms of ulcer, but he continued to bleed nonetheless.

I was doing a little research recently on the subject of peptic ulceration in relationship to some other factors and ran across a discussion in the Annals of Surgery. One of the essayists made the statement that a surgeon who operates a patient for upper GI bleeding without having some very good idea of the source of the bleeding was not realistic and that a laparotomy was contra-indicated if the surgeon didn't have a pretty concrete idea about what he was going to treat inside the abdomen. How true this is I don't know.

The surgeon also is entitled to refuse to operate on a patient if the patient has a blood dyscrasia or some adverse reaction to drugs.

I think the surgeon should be reasonably certain of the source of the bleeding if it is at all possible for him to do so before he undertakes to approach the problem from a surgical standpoint.

I am sure that we are all aware of the cases, either in our own practice or in our immediate ken of knowledge, wherein the patients have been subjected to surgery and no source of bleeding was found and the patients continued to bleed and either got well or expired anyway.

X-ray Examination

An X-ray examination was done. At the time the X-ray examination was performed the patient was not in severe condition. The thinking of the internist who was treating him at the time was that he could tolerate an upper GI series, particularly since there had been no history of ulceration.

After a diligent look with fluoroscopy and search of the films after the time of the examination, Dr. Vincent M. Ravel reported that he was unable to demonstrate varices of the esophagus and secondly, he did not find any area of ulceration in the stomach or duodenum. Now these findings would serve to deter the most hardy individuals from being very fast in picking up the knife.

It was our opinion at the time that we should probably be a little more careful. Secondly, this patient gave the history of ingestion of steroid hormones for a considerable period of time.

We are all aware that steroid hormones do promote the formation of acid in the gastric secretion and that reactivation of old peptic ulcers or aggravation of new peptic ulcers, either in the gastric mucosa or duodenal portion, is not infrequently encountered.

We are dealing with a problem here that could well be related to ingestion of steroids and we have to answer the question, "will surgical approach to bleeding caused by steroids give us any help at all?".

Minute Ulcerations

Furthermore, since we are unable to pin-point even

the bare location of the bleeding, probably multiple bleeding points from minute ulcerations were present. I am expressing to you what my opinion was at the time I saw this patient.

It was the feeling of myself and some of the others who saw this patient that we were probably dealing with a problem of bleeding which was aggravated by the ingestion of steroid hormones and their adverse reaction on this individual and if we subjected him to surgery we most certainly would have a patient who was a candidate for a fatal result. If we did not operate, we felt he was probably going to expire.

However, at the time he was seen, it was certainly doubtful whether he could be put in proper condition to have any type of incision made and have him get off the table in any reasonable condition at all.

So, to sum up! At the time the man was seen here in the hospital, and I saw him both in the capacity of being on surgical service as well as on our Saturday morning rounds, this man was bleeding, probably from multiple sources, probably gastric ulcerations that were not visible to the radiologist since no particular bleeding point was demonstrated.

Therefore, we decided to defer surgery and attempt to stop this man's bleeding in some other way. I would like to open the case at this time for discussion. I will tell you that my opinion was at that time and is now, that this man had multiple gastric ulcerations which he bled from. It is known that it is not necessary to have frank ulceration to produce bleeding, that forms of hypertrophic gastritis will result in a rather marked amount of hemorrhage and can be fatal.

Dr. Antonio Dow:

It seems to me if we couldn't stop the bleeding in from 24 to 48 hours this man should have been explored. Any person over the age of 40 who bleeds over 48 hours, should have something more than medical treatment to stop it. The more you wait, the more irreversible his condition is going to become. I want to disagree with another statement the surgeon made. Many times there is bleeding in the upper GI tract and the radiologist can't demonstrate the ulcer; perhaps the ulcer is filled up with a clot, but the surgeon can go in there and do a sub-total and nine times out of ten will get the man out of trouble. I don't understand why he wouldn't operate.

Dr. F. P. Bornstein:

You said the surgeon can get the patient nine times out of ten out of trouble. At Saturday rounds when this case was discussed a great number of statistics were quoted and none of them was as optimistic as your statement.

Dr. Antonio Dow:

I am not talking about operating on a moribund patient. I am talking about getting the patient 24 hours after he starts to bleed, still no change, still bleeding; you are giving him blood and he is pouring it out again; he is at a stage where he is not irreversible and I think you can operate and get the bleeding stopped.

Dr. F. P. Bornstein:

I remember that discussion about GI hemorrhage treatment by sub-total gastrectomy. I don't know whether anybody can bear me out and I am not familiar with the statistics but I think it was about a 50-50 proposition.

Dr. Antonio Dow:

Fred, you may be right, but I think you can give them the best chance by giving them surgery. Well, if that is necessary, I say sub-total is usually what is required. Certainly if they haven't stopped bleeding after 48 hours of medical treatment I don't think you should wait any longer. Any chance this man may have had was in surgery.

Dr. Nathan Kleban:

I would like to make one or two comments. This is certainly not intended as criticism of the management. In reviewing the chart, at the time of admission the patient was in pretty good shape and apparently was in pretty good shape for about 36 hours.

During that first 36 hours it is recorded on the nurses' notes according to the information I have here on the protocol, on five different occasions he either had a black, black liquid or black tarry stool. I think several of these did occur apparently close to the time when it was found that he was in shock and a cut-down was done in order to start the first blood transfusion.

Of course the point is that all of us need to be quite alert to the bleeding which is going on. It may have reached a pretty serious state before it makes clinical manifestations. That is obviously what was happening to this man 12 hours or so after he came in.

His hemoglobin and hematocrit were about the same as they were on the day of admission. However, during the next 12 hours he did have warning black or tarry stools to indicate that he was going to get into trouble.

Apparently he had a hypochromic anemia at the time of admission. His hemoglobin seems to be disproportionately low as compared to the hematocrit, and I suspect this man had probably been losing a little occult blood over a period of time.

If the man had been bleeding slowly and to a small extent over a longer period of time than that caused by the acute illness, he would have had an iron deficiency anemia.

A point I would like to mention is the factor of ACTH and cortisone, hydrocortisone and now prednisone.

It is a well established fact that ACTH and the corticoids can increase gastric acidity and gastric pepsin to levels higher than are usually found in individuals with duodenal peptic ulcer.

That happens to be one of the complications one must take into consideration in using those medications. The third thing I would like to comment on is that one can appreciate Dr. Gaddis' position, finding absolutely no localization of the bleeding.

On the other hand it seems to me that reason is on Dr. Dow's side. I don't recall in detail what condition this man was in after he went into shock; I don't recall if he was really a good candidate for surgery after he initially went into shock. It seems to me that Dr. Dow is right.

In apparent upper GI bleeding, be it from the stomach or from the duodenum, if one can't control the bleeding with blood replacement or rather if it is apparent that bleeding is continuing despite medical management for 48 hours or 72 hours, it seems to be a reasonable theory that the individual must have surgery if he is going to survive.

Dr. Pablo Ayub:

I would like ot bring up something that has nothing to do with the GI bleeding but perhaps it has some thing to do with the differential diagnosis. This patient had rheumatoid arthritis apparently for about ten years and he received metacorten and all these steroids.

We have discussed cases in other hospitals in which the rheumatoid arthritis and the collagen diseases have been more or less lumped together and I am wondering whether in this particular case lupus erythematosus could have entered the picture.

This patient soon before he died had a fever of about 105 which could be consistent with a lupus erythematosus crisis. There is probably no question that the bleeding was the factor that brought on his death. I wonder whether any of the internists would care to comment on these collagen diseases.

Dr. W. R. Gaddis:

I would like to say that some of these things were discussed at the time this patient was seen, Pablo. Now of course one finds oneself in a very unenviable position as far as treatment is concerned with a patient of this type referred to him by someone else. I saw this man 48 hours after he was admitted to the hospital. At that time I didn't feel as though I could get him alive off the operating table and I didn't operate. However, at the time that this patient was discussed nobody was of the opinion that we could have done any good at all with surgery.

Clinical Diagnosis: Gastric hemorrhage and shock.

Dr. Gaddis' Diagnosis: Multiple punctate hemorrhages from upper GI tract.

Anatomical Diagnosis: Gastric hemorrhage; acute, diffuse, necrotizing gastritis; chronic arthritis.

Pathological Discussion — Dr. Bornstein:

On autopsy we found a slender, emaciated, elderly man measuring approximately 180 cm. in length and weighing approximately 65 kg. The most unusual findings on external examination consisted of the marked deformities of the hands which were of the type found in chronic arthritis.

The most significant abnormalities internally were found in the stomach. The stomach was distended and filled with hemorrhagic material, part of which formed a large blood clot.

The entire gastric mucosa was covered with a dirty brown, thick, necrotic membrane with numerous tiny erosions. There was no obvious ulceration. The remainder of the intestinal tract was intact and filled with clotted blood.

On microscopic examination it was seen that the mucosa of the stomach was destroyed by ulceration. The destructive process was diffuse. The sub-mucosa and muscle layer were covered with a thick, hemorrhagic and necrotic layer.

They were infiltrated with segmented granulocytes. In some places the necrotizing process extended into the muscle layer. Throughout the stomach there were numerous dilated arterioles and capillaries which obviously represented bleeding points. The entire exudate had a large admixture of red blood cells.

These anatomical findings show a rather typical picture of a necrotizing gastritis which produced a diffusely bleeding surface which was responsible for the fatal hemorrhage. I am convinced that again we are dealing here as in two previously reported cases, with a complication of steroid treatment.

Dr. Kleban:

I don't want to dispute the claim that the lesions here are due to cortisone; however, we should remember that this patient has been in shock for a long time and these patients are known to develop ulcerations of the stomach, so-called Curling's ulcer.

Dr. Bornstein:

I do not think that this consideration is applicable here. The lesions encountered in shock, for example, after severe burns, are sharply circumscribed, punched-out lesions, and are not as diffuse as in this autopsy.

Dr. Gilbert Landis:

How do you know in a patient with such extensive necrotizing lesions of the stomach that the patient did not attempt suicide?

Dr. Bornstein:

For a lesion of this magnitude to be suicidal in type, there are only two possibilities. First, the patient ingested a strong mineral acid or a lye. In this case the lesion would not be limited to the stomach exclusively but there would have been lesions in the oral mucosa and esophagus.

The second type of lesion would be that due to mercury poisoning, in which case in addition to the stomach lesions there should have been characteristic lesions in the kidney. These were absent in this case.

Dr. Woolston, Past President of Southwestern Medical Association, Dies in Albuquerque

Dr. William H. Woolston, prominent Albuquerque physician and surgeon, died May 10 in an Albuquerque hospital. He was 66.

Dr. Woolston suffered a heart attack and had appeared to be recovering. He rallied, then died unexpectedly.

Dr. Woolston, who had been practicing in Albuquerque since 1923, had come to New Mexico as a patient in ill health the year before. He recovered his health in Silver City before coming to Albuquerque.

The physician, former star football player at the University of Illinois, was born in Geneva, Ill., on January 18, 1891.

He received his bachelor's degree from the University of Illinois, where he was an outstanding football player, and captain of the team during his senior year.

Medical Degree

Dr. Woolston received his medical degree at Northwestern University, and served in France during World War I as an Army physician. After the war, he returned to Northwestern University to serve as an instructor in surgery from 1920 to 1922.

He was practicing in Chicago when ill health caused him to move to New Mexico.

Dr. Woolston was a Fellow of the American College of Surgeons. He was a member of the county and state medical societies. He was a Mason, and a former director of the Presbyterian Hospital in Albuquerque.

He also was a past president of the Southwestern Medical Association and a member of the American Medical Association and the American Academy of Medicine.

Charter Member

He was a charter member of the National Football Hall of Fame Foundation, and a member of the Sons of the American Revolution and Phi Delta Theta fraternity.

He is survived by his widow, who is a board member of the Los Lunas Hospital and Training School and who has been active in affairs of the Bernalillo County Humane Association.

Also surviving are a son, Timothy Woolston, attorney in Albuquerque; a brother, Dr. Wesley J. Woolston of Pasadena, Calif., and two grandchildren.

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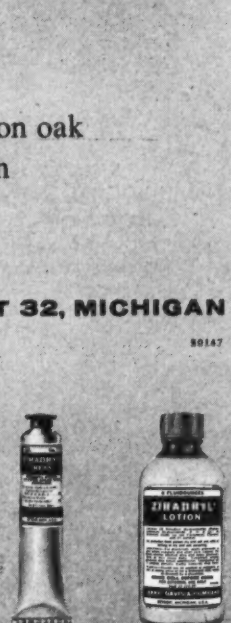
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